

## Dr. Airy's Report to the Local Government Board on an outbreak of Scarlatina at Fallowfield, near Manchester.

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Assistant Medical Officer,  
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THE following report relates to a sudden outbreak of scarlatina\* in the village of Fallowfield, three miles south of Manchester, of which the Board received information on August 12, 1879. The inquiry was taken in hand on August 16.

The main outline of the facts of the epidemic is as follows:—In the last week of July there were, among adults resident in Fallowfield, two or three attacks of illness (premonitory, so to speak, of the outbreak which followed) marked especially by vomiting and diarrhœa, and in one case by sore throat, but not developing the characteristics of scarlatina. On July 31 there occurred, in a child in one of the same families, a decided case of scarlet fever, which, however, could not be suspected of giving rise to any of the subsequent cases. On Sunday, August 3, two children of one family, living in Carill Drive (see map), and four children of another family living in Wilbraham (or Prince's) Road, were taken ill with symptoms which soon declared themselves to be those of scarlet fever, accompanied with vomiting and diarrhœa. In the course of Sunday night, August 3, and Monday, August 4, 18 persons in 11 other families, belonging to or having relation with, though some of them absent from, Fallowfield, sickened in the same way. Several of them had felt their throats sore on the Sunday evening. On Tuesday, August 5, two other cases occurred in two families previously attacked. On Wednesday, August 6, another family had a slight case of sore throat, which might have been passed over had not two other members of the same family subsequently sickened with scarlet fever, apparently caught from the first by direct contagion, on August 9 and 14. There was also a doubtful case on August 7, and another on August 13.

Thus, including nine cases of somewhat doubtful or undeveloped character, such as are not unfrequently met with in connexion with epidemics of scarlet fever, there were in all 35 persons in 18 families attacked within a period of one month; and of these 35 no fewer than 24 were attacked within a space of 36 hours, between Sunday morning August 3 and Monday evening August 4.

A list of the cases is given at the end of this report, with a few notes of the attendant circumstances.

The symptoms which accompanied the onset of the disease were in many cases so remarkable as to lead the medical men who attended them to believe that there must be something exceptional in the cause or mode of infection. Not only was there frequent vomiting, but also severe and continued diarrhœa; indeed, in some of the persons attacked diarrhœa was the most prominent and almost the only symptom; and in one of the earliest cases (No. 4 in the list), which occurred in an adult and did not show full febrile development, it was remarked that the symptoms were more those of irritant poisoning than of scarlet fever. There was, however, no doubt at all as to the real nature of the disease in other cases which with similar symptoms of irritation of the alimentary canal presented also all the characteristics of scarlet fever. Among the medical men who were in attendance on these cases a decided opinion prevailed that in all probability the morbid matter had entered the system through the alimentary canal. The outburst of 24 cases of scarlet fever within 36 hours pointed to some one common source and act of infection. At once suspicion fell upon the milk; and on inquiry it was found that every family that was attacked had received its supply of milk from one and the same dairy, while neighbouring families, taking milk from other dairies, had entirely escaped.

\* NOTE.—It need hardly be said that the names "scarlatina," "scarlet fever," are used indifferently in this report.

It was further found that one of the milkers employed at this dairy lodged at a house where a boy lay in the peeling stage of scarlet fever; and it was concluded that he had in some way conveyed the contagium of the disease to the milk. (The circumstances of this boy's illness will be described below.)

Keeping these conclusions regarding milk (to which I shall afterwards return) as much as possible in the background, my inquiries were directed in the first place to the examination of other possible or conceivable modes of fever dissemination. To assist in the discussion of the several points to be considered, I will here refer to a sketch-map of the village of Fallowfield, which is appended to this report. The village is situated on low clayey land about half way between the rivers Medlock and Mersey. The centre of the village is occupied by a small but dense mass of dwellings of the poorer class, arranged in short streets, behind a row of shops which front the main road. Around this nucleus, in almost every direction, villa residences have been built, which are tenanted mostly by gentlemen having daily business in Manchester.

With only three exceptions, the families attacked with scarlet fever belonged to the better class, residing for the most part in detached villas, separated by large gardens from their neighbours. The houses in which scarlet fever appeared are distinguished by a red mark in the map. It will be seen that they are widely distributed in the village, about the northern part more than the southern, and especially about Wilbraham (or Prince's) Road on the west side of the main road, and Oak Drive, Carill Drive, and Ladybarn Road on the east. In these roads inquiry was made, not only at the houses where fever had been present, but also at those which remained free.

It was satisfactorily ascertained that the persons who were attacked with scarlet fever had not assembled together at any neighbourly gathering, garden-party, or public entertainment within the widest possible limits of incubation of the disease. Indeed there had been no general assemblage of any such kind since Whitsuntide, the first week in June. Between the families K and M in Aucklands communication was frequent, and between some of the families in Oak Drive, occasional. With these exceptions, intercourse between any two of the various families concerned had been exceedingly rare, if there had been any at all.

If all the persons attacked had been found to have attended the same place of worship on Sunday, July 27th, there might have been ground for suspicion that the infection had been contracted there from some previously infected member of the congregation. But there had been no such community of attendance.

If these 18 families had employed the same laundress, it might have been suspected that scarlet fever had been spread with the clothes from the wash. But it appeared that only two families out of the 18 had dealings with the same laundry, and in several of them the washing (especially of the children's clothes) was done at home.

There was no scarlet fever in the house of the postman who distributed letters in Fallowfield; nor in that of the newsagent who supplied most of the residents with daily newspapers.

There is no community of drainage between different parts of the district.

Water is supplied to the district not from a local source but from the Manchester Waterworks.

The prevailing wind for the last week in July and the first few days in August had been south-west, and in that direction there are several offensive ditches carrying sewage, but this influence, though unwholesome, is not known to be capable of causing scarlet fever.

But one and all of the above-suggested conceivable modes of conveyance of the fever disappear before the simple question, Why did the fever attack only customers of one particular dairy, when their neighbours, who were customers of other dairies, escaped? Exceptional incidence on families served from one dairy is, I need hardly say, not sufficient in itself to prove that the incident disease is spread from that dairy. If every family in a certain locality took milk from one dairy, it might easily happen that scarlet fever, due to some other local cause, might break out in that locality among families all taking the same milk; yet in that case the milk would not be the cause of the outbreak. But here, at Fallowfield, there are several different dairies, all having customers in the same localities. For instance, in Wilbraham Road,

the suspected dairy (which I will call  $\Delta$ ) had the custom of five families; while 22 other families in the same road were served from other dairies. In Oak Drive six families were served from  $\Delta$ , and five from other dairies. In Carill Drive, two families from  $\Delta$ , and two from other dairies. In Lady Barn Road three from  $\Delta$ , and six from others. But scarlatina attacked only families served from  $\Delta$ . It is quite impossible that any local cause unconnected with the milk-supply could have operated with such unerring selection upon the customers of one dairy, when so many who were supplied from other dairies were in all other respects exposed to the same local conditions. The conclusion is irresistible that the contagium of scarlet fever was spread *with* the milk from the dairy  $\Delta$ ;—we must not say *in* the milk until we have described the mode of milk distribution.

The families supplied from  $\Delta$  were between 60 and 70, scattered over the whole village. With few exceptions they were families of the better class. Many of them were away from home at the time of the outbreak; others were on the point of leaving, and the date of departure in some cases will prove to be of critical value in determining the probable date of infection. On the annexed map the houses supplied from the dairy  $\Delta$  are marked blue; those in which scarlet fever appeared are distinguished by a red mark. Those which are left blank were served from other dairies. It may be noticed that the whole village admits of division into two nearly equal groups, one to the north and the other to the south of Ladybarn Road; and it will be seen at once that the number of infected families in the southern group was only two, while in the northern group it was sixteen, including doubtful cases. I shall be able to show that the milk-supply to these two groups was not exactly the same.

The position of the dairy farm  $\Delta$  is shown on the annexed map. The sign  $\Delta$  is placed against the shippen in which the cows were milked. I may say at once that there was not the slightest reason for suspecting any wilful dilution of the milk or want of cleanliness in the vessels. The business was perfectly honest, and there was general testimony to the richness of the milk. The cans were washed out with water laid on to the dairy from the Manchester Waterworks. In this respect this dairy was superior to some others in the district. The cows were about 20 in number, and were, as far as was known, free from disease. The milkers were three in number; (1) the daughter of the farmer's widow who kept the dairy; (2) a young man who lodged in the farmhouse; (3) an old man who lodged at the house of his married son in Oak Street, in the crowded block in the centre of the village. Most of the milking was done by Nos. 1 and 2. There was no definite order of milking; each milker took one cow or another as it might happen, till all were milked. The produce of each cow was poured from the milking-can through a straining cloth into the gathering-can, special care being taken as regards the cleanness of the cloth, and from it when full into one of two delivery-cans which were taken round by cart. Thus the first half of the milking was poured into one delivery can, and the second half into the other. From the morning milking, two carts, each taking one delivery-can, were despatched on two separate rounds, one going to the right (northward); the other to the left (southward) from the bottom of Ladybarn Road, one driven by milker No. 2, and the other by a nephew of milker No. 1, who himself was one of the persons attacked with scarlet fever on August 4th. From the afternoon milking, at 3 p.m., only one cart was despatched, taking two delivery-cans for the whole round. At the bottom of Ladybarn Road an additional quantity of milk was poured into one or other of the two  $\Delta$  cans from a can ( $\delta$ ) belonging to a small dairy at Cheadle Hulme, six miles away. It could not be said whether the northern or the southern can was most likely to receive this addition; but it must not be overlooked that this addition would almost necessarily make some difference in quality according as the  $\delta$  milk might be more or less pure than that from  $\Delta$ ) between the northern and southern supplies. After the can  $\delta$  had been emptied, it was left standing on a flagstone by the roadside, and was picked up and taken back to Cheadle Hulme in time for the next milking there.

While the bulk of the customers were served by cart, those who resided near to the dairy  $\Delta$ , in Aucklands (Ladybarn Road) and Carill Drive, were

served by hand, the old man (milker No. 3) carrying round their daily supply morning and evening. Thus there was a distinction, as regards the *personnel* of the milk service, between these near customers and the rest; and also (in the morning) between the north and south groups that were served by the two carts. Now if the fever had been spread by direct personal contagion from one of the milk servers to the customers whom he served, we should have expected to find that spread confined to one or another of the three groups above mentioned. But none of these groups were exempt from the scarlet fever, and we may therefore conclude that the spread of the fever was not due to personal contagion. It seems, however, almost superfluous to insist on this point, for it could not possibly happen that so many children of so many families should come in contact with the person, whoever he was, that carried the milk.

We are driven then to the conclusion that the scarlet fever infection was conveyed *in* the milk supplied from the dairy  $\Delta$ .

Though none of the three groups above mentioned were exempt from scarlet fever, yet it deserves careful notice that they were not all equally affected. The families that were personally supplied by milker No. 3 were 11 in number, including the farm  $\Delta$  itself, and five of them were attacked with scarlet fever. Of the remaining six, three contained only servants, the families having left on or before July 20th, and in two the families consisted only of adults. In this group, out of six families that were probably susceptible of infection, five were attacked.

In the remainder of the north group, there were about 25 families supplied by the north cart in the morning. Of these, 10 were visited with scarlet fever. Of the remaining 15, four families had left, on July 9th, July 18th, July 19th, and August 1st, leaving only servants in the house, who took but little milk, and were generally supplied with it in the evening: one family had discontinued taking the milk from  $\Delta$  on July 29th; at least six families consisted only of adults. In this group, out of 14 susceptible families, 10 were attacked.

The south group numbered about 30 families, of which only two were certainly infected. Of the remainder I am not able to give a precise account; but many had left, and several consisted only of adults.

This disparity will need to be taken into account in any attempt at explaining the origin of the outbreak.

As to the probable date of inception of the fever poison, we have evidence of singular importance in a remarkable case (No. 11) which has only recently come to light, a month after the date of the outbreak. I owe the particulars of it to Professor A. Gamgee, M.D., of Owen's College, who received them from the physician (Dr. Thorburn, of Manchester), who attended the case. I give the account mainly in Dr. Thorburn's own words: On August 4th, a child, E. B., residing more than two miles from Fallowfield, was attacked with the scarlatinal rash and fever. There were smart premonitory symptoms on the evening of August 3rd. She had returned along with the rest of the family from an out-of-the-way country residence where scarlatina was untraceable, on August 1st. On Saturday August 2nd, she with four others of the children was sent to the farm  $\Delta$ , whence the family intended to get their regular supply, and had there some milk to drink. She is more fond of milk than the others, and so it is probable that she had the largest quantity. This history, Dr. Thorburn remarks, taken in connection with the Fallowfield outbreak, "seems to establish an almost certainty that " the child was infected by one drink of milk, that her brothers and sisters " who tasted more sparingly at the time were unaffected, though one of them " was very feverish for a few hours, and that the period of incubation can " have been little over thirty-six hours. The last point is the most important. " If any evidence could be obtained of a similar character about other of the " Fallowfield cases it would tend to show that infection through the gastro-intestinal canal implies a very short incubation.

Confirmatory evidence of the kind desired is not wholly wanting. A nearly parallel case is found in the family K. Two boys (Nos. 21 and 22), aged 14 and 16, returned from school at Wolverhampton, where there

had been no recent scarlet fever, on Friday August 1st. On Saturday and Sunday, August 2nd and 3rd, they were at Fallowfield, and drank milk from the dairy  $\Delta$ . On Monday, August 4th, they left for Scotland, and both suffered from diarrhoea that night. On Tuesday the eldest boy had a rash. The fever was not fully developed in these cases, but they were very like some others in the same outbreak, and probably depended on the same cause.

Another case in which suspicion rested on one particular draught of milk occurred in the family C, where the lady of the house (No. 4) suffered from violent vomiting and diarrhoea in the night of August 2nd, having that evening taken some biscuit and a draught of milk for supper. The attack was so sudden and violent as to simulate irritant poisoning, and the biscuit at first came under suspicion; the milk was overlooked until the general outbreak of the next few days became known.

Moreover, there was an instance of a family of 3 children, aged 4 months, 16 months, and  $4\frac{1}{2}$  years, living in Wilbraham Road and drinking milk from  $\Delta$  without any special precaution up to the morning of Friday August 1st, (on which day they left home), yet escaping infection altogether.

A similar case occurred in Egerton Road, but this was in the southern group of customers, among whom the fever incidence was rare.

It should be mentioned, however, that another family of 5 children, of ages from 2 to 8, in Wilbraham Road, escaped altogether, though they did not leave home during the epidemic, and continued to drink milk from  $\Delta$ . The milk was not boiled. I was unable in this case to discover any circumstance that would account for the exception.

While these cases go to show that infection in the main did not take place before Saturday August 2nd, there are three cases (Nos. 14, 15, and 26) in two families H and N, which show that infection took place not later than about 2 p.m. on that day, for about that time these families left Fallowfield for distant parts of the country, and developed the symptoms of scarlet fever on Monday August 4th.

These indications conspire to make it probable that the principal date of infection was the morning of Saturday August 2nd, the disease showing itself in eighteen cases on Monday August 4th, after an incubation of some 48 hours, and in six cases on the Sunday, perhaps, after only 24 or 36 hours' incubation.

We have now to inquire how it could have happened that the milk from the dairy  $\Delta$ , and especially that portion of it which was delivered to the northern group of customers, should become contaminated with the poison of scarlet fever.

There was no recognised disease among the cows; nor, if there had been, do we know anything as yet about the possibility of scarlatinal infection being derived from such a source. It would appear then that the contamination of the milk must have taken place either (1) in the act of, or after, milking at the dairy  $\Delta$ , or (2) in the addition of the supplementary milk from Cheadle Hulme.

The latter alternative appeared at first sight full of promise, especially as it offered a probable explanation of the disparity of fever incidence on the north and south groups of customers; for it was sure to happen that this contingent from Cheadle Hulme should be added unequally to the north and south cans, and probably it would all be added to one of them. But on closer inquiry I gathered that the milk which was supplied to the nearest customers, and which was at least as infective as that which was supplied to the rest of the north group, did not contain any of the Cheadle Hulme milk, but was entirely the produce of the home dairy  $\Delta$ . This fact is sufficient to clear the Cheadle Hulme milk from suspicion, and to bring the inquiry to a point on the dairy  $\Delta$ .

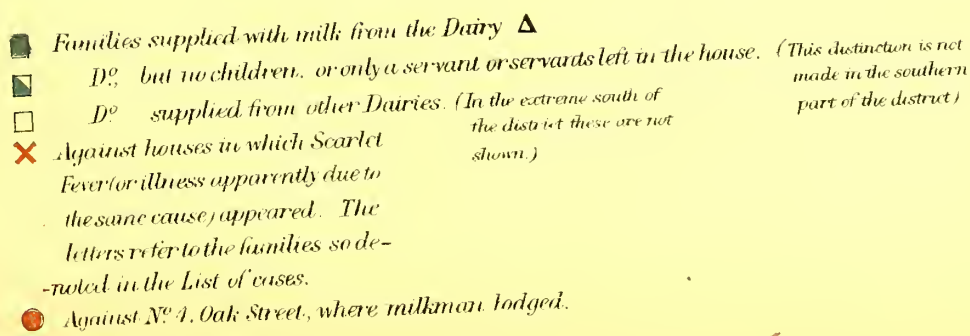
I paid two visits to Cheadle Hulme and examined into the state of things there. There was no scarlet fever in the house or among the milkers (who all live on the premises). The cans were rinsed with scalding-water every evening. The water was got from a pump in the back yard, about 15 yards distant from the privy; it was clear and tasteless. The dairy business is on a small scale and simply conducted. All the milk (from five to eight dozen quarts a day) was sent to Fallowfield, except a few quarts which were supplied to three families close at hand. One of these three families, I was informed by their medical attendant, had two cases of scarlet fever, dating from the 14th and 17th of August. There had been a previous case in the same house 18 months before. But there was a good deal of scarlet fever in the neighbourhood, and the children might have caught it at the Sunday school.

Returning to the milk produced at the dairy  $\Delta$ , I have already stated that early in the outbreak investigation by two or three medical men in the neighbourhood, who were particularly interested in the matter, brought to light the fact that while at the farm  $\Delta$  itself there was no scarlet fever prior to August 4th, and both milkers (Nos. 1 and 2) were free from any evident risk of contamination, the third milker, an old man named Hill, was lodging at a house where his grandchild was lying in the full height of desquamation after scarlet fever. The child lay in the backroom on the ground-floor. The grandfather did not return to the house for his meals, but only to sleep. He always entered at the back door (the front entrance was practically unused), and it was not necessary for him to come in contact with the sick child, as the foot of the stair leading up to the room where he and his son slept together gave immediately upon the back door.

Having regard to the confined space, imperfect ventilation, low standard of cleanliness, and want of sanitary intelligence, it is difficult to believe that the old man Hill could come from that house without carrying about him the taint of scarlatinal infection. It is not at all impossible that he may have carried in his pocket a handkerchief, seldom changed, which had been in contact with, perhaps moistened by the mucus of, the sick child; and at any time his hand may have become accidentally charged with the scarlatinal contagium. What if some such accident happened on the morning of August 2nd, just before Hill took his share of the milking? Might not the taint have passed from his hand to the milk in the very act of milking?—or possibly from his clothing as he grasped the milking can between his knees? There are evidently many possibilities of contamination under such conditions. The old man himself, I should say, vehemently denied that he had been near the child.

How then, on the theory that the milk was thus infected by one of the milkers at the dairy  $\Delta$ , could it happen that there should be so great a disparity in the incidence of scarlet fever on the two groups of customers, north and south? It is plain that if the whole milking were all mixed together in one can, and the different customers were all served in the same way and under the same conditions, there would be no great inequality between the results in two groups each containing so many individuals. But where there are two cans, there is at once the possibility of a difference (original or acquired) in their contents. And when one can is filled before the other, they not only receive the yield of different cows, but they must also receive in different degree the taint (if any) of the milkers' hands. It is indeed impossible that the contents of the two cans should be absolutely similar, though they may be equally wholesome or unwholesome. But in all probability they will be unequally so. In the case before us this inequality would in all probability be still further increased by the unequal addition of the Cheadle Hulme milk. It is, then, quite reasonable to suppose that on the morning of Saturday, August 2nd, the two cans of milk which diverged at the bottom of Ladybarn Road were unequally infective, that the one which took a northerly direction was more strongly charged with the infection of scarlet fever than the one which went to the south. This supposition would account for the unequal incidence of the fever on the north and south groups. It must be confessed, however, that there is no positive evidence that the first part of the milking was delivered to the northern, and the last part to the southern group. By the time the inquiry had reached this stage, it became difficult to obtain information.

This then, to sum up, is the theory which appears to offer the most probable explanation of all the facts of this remarkable outbreak; that the milkman, Hill did in some way convey the infection of scarlet fever from his sick grandchild at home to the milk with which he was concerned at the dairy  $\Delta$ ; that while probably on one or two previous days the milk had been contaminated in a less degree, on one special occasion it was especially contaminated; that the contents of the milk-can from which the northern group of customers were supplied were on that occasion contaminated in a higher degree than the contents of the other can from which the southern group were served, and that thus there was more general spread of fever among the former than





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among the latter; that this special contamination probably took place at the morning milking on Saturday, August 2nd; and that the period of incubation in the majority of cases was about 48 hours.

I must return to the case of the boy Hill in Oak Street, to which the whole outbreak appears to be traceable. This was the only case of scarlet fever known to exist in Fallowfield in the latter part of July. The boy was taken ill, as I learn from Mr. Smith of Fallowfield, who attended the case, at the beginning of July. There was no doubt that he had caught the disease from the child of a neighbour three doors off in the same street, who was ill with scarlet fever, for there had been frequent personal intercourse between the two families, and little if any attempt at isolation. There had been other cases of scarlet fever here in June; and shortly before there had been a great deal of scarlet fever not far from Fallowfield.

In the adjoining Ardwick district there were 37 deaths from scarlet fever in the fourth quarter of 1878, 12 in the first quarter of 1879, and eight in the second quarter. Of these eight deaths in the second quarter, five occurred in Rusholme, nearly a mile to the north of Fallowfield, on the same main road. Another death took place in Rusholme on August 23rd.

After or during such a prevalence of scarlet fever in the adjoining neighbourhood it is easy to understand how the disease might be brought into the frequented locality about Oak Street, and once there it would be likely to spread from one house to another for want of proper isolation. On the very last day of my inspection in Fallowfield I heard of a fresh case of scarlet fever in Oak Street, in an infant. In the death-register I observed that several deaths from infectious disease had occurred in Oak Street, in May, June, and July. The place is in an unwholesome condition, the dwellings are crowded together, the privies are close by the backs of the houses, and there are complaints of the sewage being backed into the cellars. This is the lowest-lying part of Fallowfield, occupying the shallow depression in which used to run the Fallowfield Brook, one of the lines of natural drainage of the district. The brook is now a sewer in culvert under this Oak Street block. A hundred yards further to the west it appears as an offensive open ditch conveying the bulk of the Fallowfield sewage to the Mersey.

Nearly the whole of Fallowfield lies within the Rusholme Urban Sanitary District. The Urban Authority are waiting in hopes of being able to benefit by a large scheme of sewerage which Manchester proposes to carry out.

Seeing what danger there is to the public health in unisolated cases of infectious disease in and about such a neighbourhood as Oak Street, it is important to ask if the Sanitary Authority have any hospital for the reception of such cases, or if they have taken any steps to exercise the power given them under the Public Health Act, 1875, section 124, for the removal to a hospital of infected persons who are without proper lodging or accommodation. These questions must be answered in the negative.\*

I cannot close this report without acknowledging the valuable aid which I received in the course of the inquiry from Professor A. Gamgee, Dr. Borchardt, Dr. Dreschfeld, Dr. Tatham, W. Smith, Esq., and J. Gregory, Esq., Medical Officer of Health for the Rusholme Urban Sanitary District.

HUBERT AIRY, M.D.

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\* Since this inquiry was made, the Rusholme Local Board have made arrangements with the Board of Management of the Manchester Royal Infirmary for the reception into the Monsall Fever Hospital of cases of infectious disease arising in the Urban Sanitary District.

## LIST OF CASES OF SCARLET FEVER IN OUTBREAK AT FALLOWFIELD.

No. of case.	Place of abode.	Family.	Age.	Date of attack.	Nature of attack and notes.
1	Oak Drive	- A.	Adult	July { 24 28 }	Diarrhœa and vomiting.
2	Aucklands	- B.	"	July 30	Sore throat. Vomiting on Aug. 3rd, possibly from milk taken on Aug. 2nd.
3	Do.	- "	9	" 31	Vomiting, scarlet fever. This family B lived nearest to the farm Δ, and took large quantities of milk every day. A younger child, who was sent away on Aug. 2nd, escaped.
4	Wilbraham Road	- C.	Adult	{ " 26 Aug. 2 }	Diarrhœa and vomiting on Aug. 2nd after milk and biscuit for supper.
5	Carill Drive	- D.	5½	Aug. 3	Scarlet fever.
6	Do.	- "	8½	" 3	
7	Wilbraham Road	- E.	7	" 3	
8	Do.	- "	8	" 3	
9	Do.	- "	12	" 3	
10	Do.	- "	13	" 3	Diarrhœa and vomiting. Severe scarlet fever.
11	St. Saviour's Manchester.	- F.	?	" 4	
12	Oak Drive	- G.	12	" 4	Returned from the country, where no scarlet fever, Aug. 1st. Had a draught of milk at Δ on Aug. 2nd. Smart premonitory symptoms on evening of Aug. 3rd, rash and fever on Aug. 4th. Attacked with scarlet fever in the morning; had complained of sore throat the previous evening.
13	Do.	- H.	25	" 4	Attacked in the morning with sore throat. Scarlet fever.
14	Do.	- "	22	" 4	Sore throat in night Aug. 3rd-4th. Scarlet fever. The two last left home on Aug. 2nd at 2 p.m., and were taken ill at Pwlltyrchon in North Wales.
15	Do.	- "	15	" 4	
16	Wilbraham Road	- C.	3	" 4	
17	Do.	- I.	10	" 4	Diarrhœa and vomiting. Severe scarlet fever. In this family an infant, for whom the milk was boiled, escaped. Left home in the morning, taken ill in the evening at Coventry. Scarlet fever.
18	Do.	- "	11	" 4	
19	-	- "	15	" 4	
20	Aucklands	- K.	11	" 4	The last had complained of sore throat before leaving. Scarlet fever. Sore throat the previous evening.
21	Do.	- "	14	" 4	Scarlet fever. Diarrhœa and vomiting about Aug. 6th.
22	Do.	- "	16	" 4	Returned from school at Wolverhampton, where no scarlet fever, Aug. 1st. Left home for Scotland Aug. 4th. Both had diarrhœa. The elder had a rash on Aug. 5th. This family took large quantities of milk from Δ.
23	Sherwood Inn	- L.	7	" 4	Sore throat; feverish.
24	Aucklands	- M.	3	" 4	Scarlet fever.
25	Do.	- "	4	" 4	Scarlet fever.
26	Egerton Lodge	- N.	6	" 4	Family left home on Aug. 2nd for Pitlochry. Child attacked there on Aug. 4th with scarlet fever. Four other children escaped, one had had scarlet fever before.
27	Large Oak Farm (Δ).	- O.	12?	" 4	Scarlet fever. A sister and a cousin escaped.
28	Portland Grove	- P.	6	" 4	Scarlet fever.
29	Aucklands	- M.	5	" 5	Scarlet fever.
30	Oak Drive	- H.	Adult	" 5	Scarlet fever.
31	Egerton Road	- Q.	8½	" 6	Sore throat.
32	Main Road	- R.	5	" 7	Sore throat.
33	Egerton Road	- Q.	12½	" 9	Scarlet fever, ? caught from her sister, No. 31.
34	Oak Drive	- S.	3½	" 13	Feverish, ? scarlet fever. Had been in company with No. 13 on Aug. 2nd.
35	Egerton Road	- Q.	17	" 14	Scarlet fever, ? caught from No. 33.